IN THE CLAIMS:

Please amend the claims as follows:

1. (Currently amended) A method of manufacturing a semiconductor device, comprising the steps of:

electrically isolating a diode formation region on a semiconductor substrate by an element isolation layer;

holding, in a vacuum chamber, said semiconductor substrate at which said element isolation layer is formed and an impurity solid including impurity to be introduced into said diode formation region;

introducing inert or reactive gas into said vacuum chamber, while said impurity solid and said semiconductor substrate are in a state where no voltage is being applied thereto, to generate plasma composed of said inert or reactive gas;

while maintaining said semiconductor substrate in a state where no voltage is being applied thereto, applying to said impurity solid first voltage which allows said impurity solid to serve as a cathode for said plasma, performing sputtering of said impurity solid by ions in said plasma, and thereby mixing said impurity in said impurity solid into said plasma;

after resuming said impurity solid back to a state where no voltage is being applied thereto, applying to said semiconductor substrate held in said vacuum chamber a second voltage which allows said semiconductor substrate to serve as a cathode for said plasma to cause a potential difference between said plasma and said semiconductor substrate so that said impurity mixed into said plasma is introduced

directly to a surface portion of said diode formation region at said semiconductor substrate to form an impurity layer; and

forming, on said semiconductor substrate at which said impurity layer is formed, an interconnection layer electrically connected to said impurity layer.

2. (Original) The method of manufacturing a semiconductor device of claim 1, wherein said step of introducing said impurity within said plasma onto the surface of the diode formation region of said semiconductor substrate includes, a process of irradiation of a laser beam on said semiconductor substrate.

3. (Original) The method of manufacturing a semiconductor device of claim 1, wherein said impurity layer includes components of said inert or reactive gas.

4. (Original) The method of manufacturing a semiconductor device of claim 3, wherein concentration of the components of said inert or reactive gas exceeds 1 X $10^{20}cm^{-3}$.

5. (Original) The method of manufacturing a semiconductor device of claim 1, wherein each of said first and second voltages is a negative voltage.

6. (Original) The method of manufacturing a semiconductor device of claim 1, wherein said semiconductor substrate is composed of silicon, said impurity is arsenic, phosphorus, boron, aluminum, antimony, gallium, or indium, and said inert or reactive gas is gas including nitrogen or argon.

7. (Currently amended) A method of manufacturing a semiconductor device, comprising the steps of:

electrically isolating a diode formation region on a semiconductor substrate by an element isolation layer;

holding, in a vacuum chamber, said semiconductor substrate at which said element isolation layer is formed and an impurity solid including impurity to be introduced into said diode formation region;

introducing inert or reactive gas into said vacuum chamber, while said impurity solid and said semiconductor substrate are in a state where no voltage is being applied thereto, to generate plasma composed of said inert or reactive gas;

while maintaining said semiconductor substrate in a state where no voltage is being applied thereto, applying to said impurity solid first voltage which allows said impurity solid to serve as a cathode for said plasma, performing sputtering of said impurity solid by ions in said plasma, and thereby mixing said impurity in said impurity solid into said plasma;

after resuming said impurity solid back to a state where no voltage is being applied thereto, applying to said semiconductor substrate held in said vacuum chamber a second voltage which allows said semiconductor substrate to serve as an anode for said plasma to cause a potential difference between said plasma and said semiconductor substrate so that said impurity mixed into said plasma is introduced directly to a surface portion of said diode formation region at said semiconductor substrate to form an impurity layer; and

forming, on said semiconductor substrate at which said impurity layer is formed, an interconnection layer electrically connected to said impurity layer

8. (Original) The method of manufacturing a semiconductor device of claim 7, wherein said step of introducing said impurity within said plasma onto the surface of the

diode formation region of said semiconductor substrate includes, a process of irradiation of a laser beam on said semiconductor substrate.

9. (Original) The method of manufacturing a semiconductor device of claim 7, wherein said impurity layer includes components of said inert or reactive gas.

10. (Original) The method of manufacturing a semiconductor device of claim 9, wherein concentration of the components of said inert or reactive gas exceeds 1 X $10^{20}cm^{-3}$.

11. (Original) The method of manufacturing a semiconductor device of claim 7, wherein said first voltage is a negative voltage.

12. (Original) The method of manufacturing a semiconductor device of claim 7, wherein said second voltage is a voltage of 0 V or lower.

13. (Original) The method of manufacturing a semiconductor device of claim 7, wherein said semiconductor substrate is composed of silicon, said impurity is arsenic, phosphorus, boron, aluminum, antimony, gallium, or indium, and said inert or reactive gas is gas including nitrogen or argon.

14. (Currently amended) A method of manufacturing a semiconductor device, comprising the steps of:

electrically isolating a diode formation region on a semiconductor substrate by an element isolation layer;

holding, in a vacuum chamber, said semiconductor substrate at which said element isolation layer is formed and an impurity solid including impurity to be introduced into said diode formation region;

introducing inert or reactive gas into said vacuum chamber, while said impurity solid and said semiconductor substrate are in a state where no voltage is being applied thereto, to generate plasma composed of said inert or reactive gas;

while maintaining said semiconductor substrate in a state where no voltage is being applied thereto, applying to said impurity solid first voltage which allows said impurity solid to serve as an anode for said plasma, performing sputtering of said impurity solid by ions in said plasma, and thereby mixing said impurity in said impurity solid into said plasma;

after resuming said impurity solid back to a state where no voltage is being applied thereto, applying to said semiconductor substrate held in said vacuum chamber a second voltage which allows said semiconductor substrate to serve as an anode for said plasma to cause a potential difference between said plasma and said semiconductor substrate so that said impurity mixed into said plasma is introduced directly to a surface portion of said diode formation region at said semiconductor substrate to form an impurity layer; and

forming, on said semiconductor substrate at which said impurity layer is formed, an interconnection layer electrically connected to said impurity layer.

15. (Original) The method of manufacturing a semiconductor device of claim 14, wherein said step of introducing said impurity within said plasma onto the surface of the diode formation region of said semiconductor substrate includes, a process of irradiation of a laser beam on said semiconductor substrate.

16. (Original) The method of manufacturing a semiconductor device of claim 14, wherein said impurity layer includes components of said inert or reactive gas.

17. (Original) The method of manufacturing a semiconductor device of claim 16, wherein concentration of the components of said inert or reactive gas exceeds 1 X $10^{20}cm^{-3}$.

18. (Original) The method of manufacturing a semiconductor device of claim 14, wherein each of said first and second voltages is a voltage of 0 V or lower.

19. (Original) The method of manufacturing a semiconductor device of claim 14, wherein said semiconductor substrate is composed of silicon, said impurity is arsenic, phosphorus, boron, aluminum, antimony, gallium, or indium, and said inert or reactive gas is gas including nitrogen or argon.

20. (Currently amended) A method of manufacturing a semiconductor device, comprising the steps of:

electrically isolating a transistor formation region on a semiconductor substrate by an element isolation layer;

forming an electrode at said transistor formation region on said semiconductor substrate at which said element isolation layer is formed, with an insulating layer interposed therebetween;

holding, in a vacuum chamber, said semiconductor substrate at which said electrode is formed and an impurity solid including impurity to be introduced into said transistor formation region;

introducing inert or reactive gas into said vacuum chamber, while said impurity solid and said semiconductor substrate are in a state where no voltage is being applied thereto, to generate plasma composed of said inert or reactive gas;

while maintaining said semiconductor substrate in a state where no voltage is being applied thereto, applying to said impurity solid first voltage which allows said impurity solid to serve as a cathode for said plasma, performing sputtering of said impurity solid by ions in said plasma, and thereby mixing said impurity in said impurity solid into said plasma;

after resuming said impurity solid back to a state where no voltage is being applied thereto, applying to said semiconductor substrate held in said vacuum chamber a second voltage which allows said semiconductor substrate to serve as a cathode for said plasma to cause a potential difference between said plasma and said semiconductor substrate so that said impurity mixed into said plasma is introduced directly to a surface portion of said transistor formation region at said semiconductor substrate to form an impurity layer; and

forming, on said semiconductor substrate at which said impurity layer is formed, an interconnection layer electrically connected to said impurity layer.

21. (Original) The method of manufacturing a semiconductor device of claim 20, wherein said step of introducing said impurity within said plasma onto the surface of the diode formation region of said semiconductor substrate includes, a process of irradiation of a laser beam on said semiconductor substrate.

22. (Original) The method of manufacturing a semiconductor device of claim 20, wherein said impurity layer includes components of said inert or reactive gas.

23. (Original) The method of manufacturing a semiconductor device of claim 22, wherein concentration of the components of said inert or reactive gas exceeds 1 X $10^{20}cm^{-3}$.

24. (Original) The method of manufacturing a semiconductor device of claim 20, wherein each of said first and second voltages is a negative voltage.

25. (Original) The method of manufacturing a semiconductor device of claim 20, wherein said semiconductor substrate is composed of silicon, said impurity is arsenic, phosphorus, boron, aluminum, antimony, gallium, or indium, and said inert or reactive gas is gas including nitrogen or argon.

26. (Currently amended) A method of manufacturing a semiconductor device, comprising the steps of:

electrically isolating a transistor formation region on a semiconductor substrate by an element isolation layer;

forming an electrode at said transistor formation region on said semiconductor substrate at which said element isolation layer is formed, with an insulating layer interposed therebetween;

holding, in a vacuum chamber, said semiconductor substrate at which said electrode is formed and an impurity solid including impurity to be introduced into said transistor formation region;

introducing inert or reactive gas into said vacuum chamber, while said impurity solid and said semiconductor substrate are in a state where no voltage is being applied thereto, to generate plasma composed of said inert or reactive gas;

while maintaining said semiconductor substrate in a state where no voltage is being applied thereto, applying to said impurity solid first voltage which allows said impurity solid to serve as a cathode for said plasma, performing sputtering of said

impurity solid by ions in said plasma, and thereby mixing said impurity in said impurity solid into said plasma;

after resuming said impurity solid back to a state where no voltage is being applied thereto, applying to said semiconductor substrate held in said vacuum chamber a second voltage which allows said semiconductor substrate to serve as an anode for said plasma to cause a potential difference between said plasma and said semiconductor substrate so that said impurity mixed into said plasma is introduced directly to a surface portion of said transistor formation region at said semiconductor substrate to form an impurity layer; and

forming, on said semiconductor substrate at which said impurity layer is formed, an interconnection layer electrically connected to said impurity layer.

27. (Original) The method of manufacturing a semiconductor device of claim 26, wherein said step of introducing said impurity within said plasma onto the surface of the diode formation region of said semiconductor substrate includes, a process of irradiation of a laser beam on said semiconductor substrate.

28. (Original) The method of manufacturing a semiconductor device of claim 26, wherein said impurity layer includes components of said inert or reactive gas.

29. (Original) The method of manufacturing a semiconductor device of claim 28, wherein concentration of the components of said inert or reactive gas exceeds 1 X $10^{20}cm^{-3}$.

30. (Original) The method of manufacturing a semiconductor device of claim 26, wherein said first voltage is a negative voltage.

31. (Original) The method of manufacturing a semiconductor device of claim 26, wherein said second voltage is a voltage of 0 V or lower.

32. (Original) The method of manufacturing a semiconductor device of claim 26, wherein said semiconductor substrate is composed of silicon, said impurity is arsenic, phosphorus, boron, aluminum, antimony, gallium, or indium, and said inert or reactive gas is gas including nitrogen or argon.

33. (Currently amended) A method of manufacturing a semiconductor device, comprising the steps of:

electrically isolating a transistor formation region on a semiconductor substrate by an element isolation layer;

forming an electrode at said transistor formation region on said semiconductor substrate at which said element isolation layer is formed, with an insulating layer interposed therebetween;

holding, in a vacuum chamber, said semiconductor substrate at which said electrode is formed and an impurity solid including impurity to be introduced into said transistor formation region;

introducing inert or reactive gas into said vacuum chamber, while said impurity solid and said semiconductor substrate are in a state where no voltage is being applied thereto, to generate plasma composed of said inert or reactive gas;

while maintaining said semiconductor substrate in a state where no voltage is being applied thereto, applying to said impurity solid first voltage which allows said impurity solid to serve as an anode for said plasma, performing sputtering of said

impurity solid by ions in said plasma, and thereby mixing said impurity in said impurity solid into said plasma;

after resuming said impurity solid back to a state where no voltage is being applied thereto, applying to said semiconductor substrate held in said vacuum chamber a second voltage which allows said semiconductor substrate to serve as an anode for said plasma to cause a potential difference between said plasma and said semiconductor substrate so that said impurity mixed into said plasma is introduced directly to a surface portion of said transistor formation region at said semiconductor substrate to form an impurity layer; and

forming, on said semiconductor substrate at which said impurity layer is formed, an interconnection layer electrically connected to said impurity layer.

34. (Original) The method of manufacturing a semiconductor device of claim 30, wherein said step of introducing said impurity within said plasma onto the surface of the diode formation region of said semiconductor substrate includes, a process of irradiation of a laser beam on said semiconductor substrate.

35. (Original) The method of manufacturing a semiconductor device of claim 30, wherein said impurity layer includes components of said inert or reactive gas.

36. (Original) The method of manufacturing a semiconductor device of claim 35, wherein concentration of the components of said inert or reactive gas exceeds 1 X $10^{20}cm^{-3}$.

37. (Original) The method of manufacturing a semiconductor device of claim 30, wherein each of said first and second voltages is a voltage of 0 V or lower.

38. (Original) The method of manufacturing a semiconductor device of claim 30, wherein said semiconductor substrate is composed of silicon, said impurity is arsenic, phosphorus, boron, aluminum, antimony, gallium, or indium, and said inert or reactive gas is gas including nitrogen or argon.

39. (Previously presented) The method of claim 1, wherein said first voltage is supplied from a first power supply and said second voltage is supplied from a second power supply, said first power supply and said second power supply being separate from one another.

40. (Previously presented) The method of claim 7, wherein said first voltage is supplied from a first power supply and said second voltage is supplied from a second power supply, said first power supply and said second power supply being separate from one another.

41. (Previously presented) The method of claim 14, wherein said first voltage is supplied from a first power supply and said second voltage is supplied from a second power supply, said first power supply and said second power supply being separate from one another.

42. (Previously presented) The method of claim 20, wherein said first voltage is supplied from a first power supply and said second voltage is supplied from a second power supply, said first power supply and said second power supply being separate from one another.

43. (Previously presented) The method of claim 26, wherein said first voltage is supplied from a first power supply and said second voltage is supplied from a second

power supply, said first power supply and said second power supply being separate from one another.

44. (Previously presented) The method of claim 33, wherein said first voltage is supplied from a first power supply and said second voltage is supplied from a second power supply, said first power supply and said second power supply being separate from one another.

45. (New) The method of manufacturing a semiconductor device of claim 1, wherein

said semiconductor substrate is connected to a first power supply via a first selector switch,

said first selector switch switches between connecting said semiconductor substrate to ground and to said first power supply,

said impurity solid is connected to a second power supply via a second selector switch,

said second selector switch switches between connecting said impurity solid to ground and to said second power supply,

in the step of generating plasma, said first selector switch and said second selector switch respectively connect said semiconductor substrate and said impurity solid to ground,

in the step of mixing said impurity in said impurity solid into said plasma, said first selector switch connects said semiconductor substrate to ground while said second selector switch connects said impurity solid to said second power supply,

in the step of forming said impurity layer, said first selector switch connects said semiconductor substrate to said first power supply while said second selector switch connects said impurity solid to ground.

46. (New) The method of manufacturing a semiconductor device of claim 7, wherein

said semiconductor substrate is connected to a first power supply via a first selector switch,

said first selector switch switches between connecting said semiconductor substrate to ground and to said first power supply,

said impurity solid is connected to a second power supply via a second selector switch,

said second selector switch switches between connecting said impurity solid to ground and to said second power supply,

in the step of generating plasma, said first selector switch and said second selector switch respectively connect said semiconductor substrate and said impurity solid to ground,

in the step of mixing said impurity in said impurity solid into said plasma, said first selector switch connects said semiconductor substrate to ground while said second selector switch connects said impurity solid to said second power supply,

in the step of forming said impurity layer, said first selector switch connects said semiconductor substrate to said first power supply while said second selector switch connects said impurity solid to ground.

47. (New) The method of manufacturing a semiconductor device of claim 14, wherein

said semiconductor substrate is connected to a first power supply via a first selector switch,

said first selector switch switches between connecting said semiconductor substrate to ground and to said first power supply,

said impurity solid is connected to a second power supply via a second selector switch,

said second selector switch switches between connecting said impurity solid to ground and to said second power supply,

in the step of generating plasma, said first selector switch and said second selector switch respectively connect said semiconductor substrate and said impurity solid to ground,

in the step of mixing said impurity in said impurity solid into said plasma, said first selector switch connects said semiconductor substrate to ground while said second selector switch connects said impurity solid to said second power supply,

in the step of forming said impurity layer, said first selector switch connects said semiconductor substrate to said first power supply while said second selector switch connects said impurity solid to ground.

48. (New) The method of manufacturing a semiconductor device of claim 20, wherein

said semiconductor substrate is connected to a first power supply via a first selector switch,

said first selector switch switches between connecting said semiconductor substrate to ground and to said first power supply,

said impurity solid is connected to a second power supply via a second selector switch,

said second selector switch switches between connecting said impurity solid to ground and to said second power supply,

in the step of generating plasma, said first selector switch and said second selector switch respectively connect said semiconductor substrate and said impurity solid to ground,

in the step of mixing said impurity in said impurity solid into said plasma, said first selector switch connects said semiconductor substrate to ground while said second selector switch connects said impurity solid to said second power supply,

in the step of forming said impurity layer, said first selector switch connects said semiconductor substrate to said first power supply while said second selector switch connects said impurity solid to ground.

49. (New) The method of manufacturing a semiconductor device of claim 26, wherein

said semiconductor substrate is connected to a first power supply via a first selector switch,

said first selector switch switches between connecting said semiconductor substrate to ground and to said first power supply,

said impurity solid is connected to a second power supply via a second selector switch,

said second selector switch switches between connecting said impurity solid to ground and to said second power supply,

in the step of generating plasma, said first selector switch and said second selector switch respectively connect said semiconductor substrate and said impurity solid to ground,

in the step of mixing said impurity in said impurity solid into said plasma, said first selector switch connects said semiconductor substrate to ground while said second selector switch connects said impurity solid to said second power supply,

in the step of forming said impurity layer, said first selector switch connects said semiconductor substrate to said first power supply while said second selector switch connects said impurity solid to ground.

50. (New) The method of manufacturing a semiconductor device of claim 33, wherein

said semiconductor substrate is connected to a first power supply via a first selector switch,

said first selector switch switches between connecting said semiconductor substrate to ground and to said first power supply,

said impurity solid is connected to a second power supply via a second selector switch,

said second selector switch switches between connecting said impurity solid to ground and to said second power supply,

in the step of generating plasma, said first selector switch and said second selector switch respectively connect said semiconductor substrate and said impurity solid to ground,

in the step of mixing said impurity in said impurity solid into said plasma, said first selector switch connects said semiconductor substrate to ground while said second selector switch connects said impurity solid to said second power supply,

in the step of forming said impurity layer, said first selector switch connects said semiconductor substrate to said first power supply while said second selector switch connects said impurity solid to ground.